

WHAT IS CLAIMED IS:

1. A device for forming an image of a subject, the device comprising:

(a) a focusing lens having an optical axis, with the focusing lens being movable along the optical axis for focusing an image of the subject at an imaging position;

(b) a motor connected to the focusing lens, operable for causing the focusing lens to move along the optical axis;

(c) an image sensor having a sensing surface located at the imaging position, which produces electronic information in accordance with images on the sensing surface; and

(d) a central processing unit electronically connected to the image sensor and receiving electronic information from the image sensor, and electronically connected to and controlling the motor, the central processing unit having a memory and program logic, in which the program logic in accordance with predetermined conditions stored in the memory, determines a start point of a search for an in-focus position of an image of the subject on the imaging position, and controls operation of the motor to move the focusing lens to the start point, and to move the focusing lens from the start point until an in-focus position is reached based on analyzing electronic information received from the image sensor.

2. The device of claim 1, wherein the focusing lens is movable

forward and back along the optical axis, and the program logic determines, in accordance with the predetermined conditions, to search one of forward and back from the start point along the optical axis for an in-focus position.

3. The device of claim 1, wherein the program logic determines, in accordance with the predetermined conditions, a range for the search.

4. The device of claim 1, wherein the program logic determines, in accordance with the predetermined conditions, a method of determination of an in-focus position.

5. The device of claim 1, wherein, when the search for an in-focus position is unsuccessful, the program logic, in accordance with the predetermined conditions, controls the motor to move the focusing lens to a focusing position stored in advance in the memory.

6. The device of claim 1, wherein the predetermined conditions are photographic modes including at least a close-up mode, a landscape mode and a night scene mode.

7. The device of claim 6, wherein an in-focus position is predetermined to be at one of a close position side and a far position side depending on the photographic mode, and, if the in-focus position is predetermined to be at the close position side, the start

point is the close position and the search proceeds toward the far position and, if the in-focus position is predetermined to be at the far position side, the start point is the far position and the search proceeds toward the close position.

8. A focusing method for use in an imaging device for focusing an image of a subject at an imaging position using a focusing lens movable along an optical axis, the method comprising the steps of:

(a) determining, in accordance with predetermined conditions, a start point from which to move the focusing lens along the optical axis in searching for an in-focus position;

(b) positioning the focusing lens at the start point; and

(c) moving the focusing lens along the optical axis from the start point, searching for an in-focus position.

9. The focusing method of claim 8, further comprising determining, in accordance with the predetermined conditions, a direction to search from the start point along the optical axis for an in-focus position.

10. The focusing method of claim 8, further comprising determining, in accordance with the predetermined conditions, a range for the search.

11. The focusing method of claim 8, further comprising determining,

in accordance with the predetermined conditions, a method for deciding whether an in-focus position has been reached.

12. The focusing method of claim 8, wherein, if the search for an in-focus position is unsuccessful, the focusing lens is moved, in accordance with the predetermined conditions, to a default focusing position.

13. The focusing method of claim 8, wherein the predetermined conditions are photographic modes including at least a close-up mode, a landscape mode and a night scene mode.

14. The focusing method of claim 13, wherein an in-focus position is predetermined to be at one of a close position side and a far position side depending on the photographic mode, and, if the in-focus position is predetermined to be at the close position side, the start point is the close position and the search proceeds toward the far position and, if the in-focus position is predetermined to be at the far position side, the start point is the far position and the search proceeds toward the close position.

15. A computer program product for use in focusing an image of a subject at an imaging position in an imaging device having a computer, wherein the computer controls movement of a focusing lens along an optical axis, the product comprising a recording

medium having recorded thereon electronically readable information which, when used to program the computer, causes the computer to:

(a) determine, in accordance with predetermined conditions, a start point from which to move the focusing lens along the optical axis in searching for an in-focus position;

(b) position the focusing lens at the start point; and

(c) move the focusing lens along the optical axis from the start point, searching for an in-focus position.

16. The computer program product of claim 15, wherein the electronically readable information, when used to program the computer, further causes the computer to determine, in accordance with the predetermined conditions, a direction to search from the start point along the optical axis for an in-focus position.

17. The computer program product of claim 15, wherein the electronically readable information, when used to program the computer, further causes the computer to determine, in accordance with the predetermined conditions, a range for the search.

18. The computer program product of claim 15, wherein the electronically readable information, when used to program the computer, further causes the computer to determine, in accordance with the predetermined conditions, a method for deciding whether an in-focus position has been reached.

19. The computer program product of claim 15, wherein the electronically readable information, when used to program the computer, if the search for an in-focus position is unsuccessful, includes causing the computer, in accordance with the predetermined conditions, to move the focusing lens to a default focusing position.

20. The computer program product of claim 15, wherein the predetermined conditions are photographic modes including at least a close-up mode, a landscape mode and a night scene mode.